

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

**TRANSLATION**

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year) **See form PCT/ISA/210**

Applicant's or agent's file reference

**Cas 2259PCT/CM**

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

**PCT/EP2004/012626**

International filing date (day/month/year)

**08.11.2004**

Priority date (day/month/year)

**21.11.2003**

International Patent Classification (IPC) or both national classification and IPC

**B81C5/00, B81B7/00, G01M3/38, G01M3/40, G01M3/04, G01M3/02, H01L23/20, H01L23/26, H01L23/00**

Applicant

**ASULAB S.A.**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP

Authorized officer

Facsimile No.

Telephone No.

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Box No. I      Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language  
\_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format  
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-10, 12-14, 16</u>	YES
	Claims	<u>11, 15</u>	NO
Inventive step (IS)	Claims	<u>1-10, 14</u>	YES
	Claims	<u>12, 13, 16</u>	NO
Industrial applicability (IA)	Claims	<u>1-16</u>	YES
	Claims	<u></u>	NO

2. Citations and explanations:

The following documents serve as a basis for the examination:

**The application in its initial version**

1. The present notification makes reference to the following documents; the sequential numbers attributed thereto shall be used throughout the procedure:

D1: US-A-2002/0096421

D2: EP-A-1310380

D3: US-A-4224565

2. The present application fails to comply with the requirements of PCT Article 33(1) since the subject matter of claim 11 does not satisfy the criterion of novelty as defined in PCT Article 33(2).

2.1 This is because D1 describes (see in particular

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figures 2A to 4A together with the corresponding text) a micrometric component (400) comprising a structure ("movable structure" 230) created on a portion of a substrate (222) and a cap ("lid assembly" 200) fixed to an area of the substrate, a closed cavity being delimited by the inner surface of the cap, the structure and the area of the substrate ("sealed cavity" 404), characterized in that it comprises a monitoring element ("signal path" 208) inside the cavity whose electrical properties permanently change in the presence of a reactive fluid so as to make it possible to check the hermeticity of the cavity of the said component.

The document therefore discloses all the features in claim 11, and the subject matter of the said claim is therefore not novel.

- 2.2 Furthermore, document D2 (see in particular figure 2 together with the corresponding text and paragraphs [0004] to [0006] in particular) describes a micrometric component ("complete device" 9) comprising a structure ("resonance type accelerometer" 8: see column 2, lines 40-43) created on a portion of a substrate ("encasing layer" 4, the lower layer) and a cap ("encasing layer" 4, the upper layer) fixed to an area of the substrate, a closed cavity being delimited by the inner surface of the cap, the structure and the area of the substrate ("cavity" 11), characterized in that it comprises a monitoring element ("metal

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layer" 5) inside the cavity whose electrical properties permanently change in the presence of a reactive fluid so as to make it possible to check the hermeticity of the cavity of the said component.

- 2.3 Document D3 (see in particular figure 1 together with the corresponding text) describes a micrometric component (see column 3, lines 8 to 11: "circuit chip 10 ... in a conventional package") comprising a structure ("circuit chip" 10) created on a portion of a substrate (the layer 12 and "the bottom surface of ... the package": column 3, lines 12 to 13) and a cap ("cover" 24) fixed to an area of the substrate, a closed cavity (the space under the cover 24) being delimited by the inner surface of the cap, the structure and the area of the substrate, characterized in that it comprises a monitoring element ("moisture sensing unit" 30) inside the cavity whose electrical properties permanently change in the presence of a reactive fluid so as to make it possible to check the hermeticity of the cavity of the said component (see column 1, line 67 to column 2, line 11).

3. The subject matter of claim 15 does not satisfy the criterion of novelty as defined in PCT Article 33(2).

With regard to claim 15, document D1 describes the substrate (222) and the cap (202) being made of

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	<p>glass or silicon (see paragraphs 52 and 60).</p> <p>Document D2 also describes the substrate (4) and the cap (4) being made of glass or silicon (see column 2, lines 7 to 10).</p> <p>4. The present application fails to comply with the requirements of PCT Article 33(1) since the subject matter of claims 12, 13 and 16 does not involve an inventive step within the meaning of PCT Article 33(3).</p> <p>4.1 With regard to claim 12, document D2 describes that the cavity comprises an inert gas (see column 1, lines 57 to 58 and column 2, line 6) and that the component has a reference element (5). The component according to claim 12 differs from the component known from D1 only in that it is stipulated that the reference element is a layer of copper or titanium, which is obtained by selective chemical etching or by selective deposition. These features represent a common technical approach for a person skilled in the art and therefore do not involve an inventive step.</p> <p>4.2 The features added by claim 13 represent a common technical approach for a person skilled in the art and therefore do not involve an inventive step.</p> <p>4.3 With regard to claim 16, the choice of a palladium resistor as the reference element represents one variant embodiment that a person skilled in the art would use for such a component (see document</p>

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D1, paragraph [0053] "The signal path 208 is preferably made of ... palladium"). The use of inert gas in the cavity is well known in the technical field (see document D2, column 1, lines 57 to 58 and column 2, line 6).